

Amendments to the Specification

A new paragraph has been added to page 1 after line 1 as follows.

This application is a division of Application No. 08/736,245 filed October 24, 1996.

The paragraph starting at page 6, line 25 has been amended as follows.

The above-mentioned objects can be attained, according to the present invention, by an output apparatus comprising control means capable of storing the actual consumed amount of the recording material in the non-volatile memory means of the recording material cartridge and transmitting the stored content in response to a user operation on the printing apparatus or a request form from the host computer.

The paragraph starting at page 7, line 6 has been amended as follows.

The above-mentioned objects can be attained, according to the present invention, by an output apparatus comprising controls control means which stores the expiry date of the recording material in the non-volatile memory means thereof and generates a warning when the expiry date of the cartridge is reached.

The paragraph starting at page 7, line 27 has been amended as follows.

Fig. 4 is a view showing the spreading of toner in ~~a dot dots~~ in an embodiment of the present invention;

The paragraph starting at page 8, line 22 has been amended as follows.

Referring to Fig. 1, a main body 1000 of the laser beam printer is capable of accepting and storing the print information (character codes etc.), ~~form in formation~~ information and macro instructions supplied from an externally connected host computer, generating character patterns and form patterns according to such information and recording an image on a recording medium such as a recording paper. An operation panel 1012 is provided with operation switches, a liquid crystal display etc. A printer control unit 1001 controls the entire main body 1000 of the laser beam printer and also analyzes the character information etc. supplied from the host computer. The printer control unit 1001 converts principally the character information into a video signal of corresponding character patterns, for supply to a laser driver 1002. The laser driver 1002, for driving a semiconductor laser 1003, effects on-off switching of the laser beam 1004 emitted from the semiconductor laser 1003, according to the input video signal. The laser beam 1004 is laterally deflected by a rotary polygon mirror 1005, and scans an electrostatic drum 1006, whereby an electrostatic latent image of the character pattern is formed thereon. The latent image is developed, by a developing unit 1007 provided around the electrostatic drum 1006, into a visible image which is then transferred onto a recording sheet. The recording sheet, which is in a cut sheet form, contained in a sheet cassette 1008 mounted on the LBP

1000, is supplied into the LBP by a feed roller 1009 and transport rollers 1010, 1011, and is supplied to the electrostatic drum 1006. The main body 1000 of the LBP is provided with at least an unrepresented card slot for accepting a card for the optional font, in addition to the incorporated fonts, and a control card (emulation card) for a different language system.

The paragraph starting at page 20, line 23 has been amended as follows.

In the Third embodiment, in the calculation of the toner consumption by the multiplication of the average toner consumption per page with the number of pages, it is possible to obtain the toner consumption in a more accurate manner by weighting the number of pages for the paper which consumes more toner in on average.

The paragraph starting at page 21, line 11 has been amended as follows.

In general, the detection of the low toner state can be temporarily relieved by shaking the toner cartridge, because such cartridge shaking uniformly “levels” the toner which is localized in the cartridge. The low toner state will be detected again in such relieved toner cartridge after it is used for a while. The low toner state will be continuously detected after a certain number of such cycles, and eventually the toner will be completely exhausted.

The paragraph starting at page 21, line 23 has been amended as follows.

Such number allows the user to judge whether the cartridge is still usable by shaking or whether it is close to the end of the service life.

The paragraph starting at page 22, line 1 has been amended as follows.

At the shipment of the toner cartridge, the service life of each component (number of sheet sheets for which the component can be used) of the toner cartridge is recorded in the non-volatile memory 33 thereof as shown in Fig. 8.

The paragraph starting at page 22, line 27 has been amended as follows.

At first a step S71 discriminates whether the low toner state of a relatively light level has been generated in the printing apparatus, based on the number of the low toner states generated. If such low toner state is generated, a step S72 requests that the user shakes shake the cartridge, by a display either on the operation unit 1012 of the printing apparatus or on the monitor of the host computer 3000. If the low toner state of the light level is not generated, the sequence proceeds to a step S73 to discriminate whether the low toner state of a medium level has been generated (for example by a warning for a low toner state subsequent to the twice shaking twice of the cartridge after the initial low toner state). If such low toner state is generated, the user is given a warning that the remaining toner amount is considerably low, by a display either on the operation unit 1012 of the printing apparatus or on the monitor of the host computer 3000 as in the step S72. If such low toner

state of the medium level is not generated either, the sequence proceeds to a step S75 to discriminate whether the low toner state of a serious level has been generated. If generated, the sequence proceeds to a step S76 to provide a display as in the step S72 or S74. If the user intends to carry out the printing operation, the host computer 3000 may request the confirmation of the user for such operation, in addition to the display of the warning.

The paragraph starting at page 24, line 17 has been amended as follows.

As an example, in a flow chart shown in Fig. 9, the average toner consumption per day is derived for example in consideration of the kind of paper as explained in the foregoing, and there is discriminated whether the low toner state (or the expiration of the usable life) is anticipated after a week, based on the opened date of the toner cartridge, the service life of the components, the usable life of the cartridge etc. (S1), and, if anticipated, a corresponding warning is displayed on the host computer or on the printing apparatus (S2). In this embodiment, the display is given when a printing operation is instructed. The timing of the display may however be made selectable by the user. Such control may be contained in the printer driver program or the utility program, contained for example in a floppy disk attached to the printing apparatus. In such case, the present invention also covers the memory medium containing such control program. The one-week period mentioned above is assumed to be a sufficient period required for obtaining a new toner cartridge. On the other hand, the toner amount actually remaining at

the time of warning may vary, depending on the status of use such as the kind of paper. As an alternative, the warning may be given when the remaining toner reaches a certain predetermined amount. In such case, the toner may run out three days later or two weeks later, depending on the state of use.